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The Role of Gemination in Inflection and Word Formation of Modern Standard Arabic

Abstract

This paper discusses geminatien, mainly its morphologically conditioned cases. It gives an account of the use of gemination in inflection and – much more abundant – in word formation (of deverbal, denominal and deadjectival verbs, of deverbal, denominal and deadjectival nouns and of deverbal adjectives). The analysis focuses on meanings of derivatives in which gemination occurs (indicating also the mechanisms of motivation).

Keywords: Modern Standard Arabic, geminatien, inflection, word formation, semantic analysis

Gemination,¹ that is lengthening or doubling of a consonant, regularly appears in Modern Standard Arabic (MSA) in mostly the same way, as in other Semitic languages.² In some cases it is a by-product of phonetic processes taking place within particular lexemes and in other cases it is a procedure used deliberately in inflection and word formation, and as such it determines meanings of inflected forms and derivatives, so it should be considered a part of language system.

Phonetic analysis of this phenomenon is provided i.a. by Salman Al-Ani and Henri Fleisch, and its prosodic analysis i.a. by John J. McCarthy and Alan S. Prince, Robert D. Hoberman, Samuel Rosenthal. Whereas these authors focus mainly on formal aspects of the phenomenon, this paper is aimed at reviewing meanings of inflected forms and derivatives in which gemination occurs. It has been conceived as an appendix to my monograph Słowotwórstwo rzeczowników arabskich i polskich w ujęciu kontrastywnym [The Contrastive Analysis of Noun Formation in Arabic and Polish], which offers semantic approach to the issues of word formation (analysis starts with meanings and indicates possible ways of expressing them). In the Polish language gemination is a rare and exclusively phonetically conditioned phenomenon with no semantic implications. For instance the paired lexemes: winy : winny [faults : guilty], rana : ranna [wound : wounded (fem.)], podany : poddany [served : subject] differ in their meanings but the geminations are accidental consequences of occurrence of two identical consonants at the junctions of morphemes. That is why I have not discussed in detail this technique of word formation in the monograph. In MSA gemination may also result exclusively from phonetic factors, but the important thing is, that in numerous cases it bears semantic functions. This paper therefore focuses exclusively on Modern Standard Arabic and surveys various forms in which gemination occurs, in order to indicate and classify meanings expressed by them.

Geminated consonants (called geminates), which are characterized as double consonants or long consonants, stand out by the longer period of their articulation. In MSA – as well as in other Semitic languages – all consonants can be geminated. Though gemination may be semantically relevant, it is not reflected in orthography. The sign ُ called َشدَة šadda strengthening, intensification, appears only in vocalized texts which constitute a small fraction of all written texts.

Phonetically conditioned gemination occurs, when at the junction of two morphemes there are two identical consonants adjacent to each other, and no vowel separates them (for example doubling of consonant t in past tense conjugation of verbs having stems ending with t, that attach suffixes that begin also with t, e.g.: ُسكتت sakat-tu I broke off). Similar

8 Iwona Król, Słowotwórstwo rzeczowników arabskich i polskich w ujęciu kontrastywnym, Księgarnia Akademicka, Kraków 2013.
10 Lipinski, Semitic Languages, pp. 148–149.
is the case of so called geminate verbs, in which the second and third consonant of the root are the same. Short vowel that separates two identical consonants is elided when they are followed by a short vowel, e.g.: * ﻗُرَّ ﻗُرَّ ﻗُرَّ farara > ﻗُرُّ ﻗُرُّ farra to flee, run away.\textsuperscript{11}

Gemination may occur in cases of total assimilation of adjacent consonants, e.g.:

(i) consonant l in the definite article al- which is assimilated to the subsequent consonant (dental, alveolar or interdental) that occurs at the beginning of the following word, e.g. * ال- ﻣُسَبَّعُ ﻣُسَبَّعُ as-siyāsa the policy;\textsuperscript{12}

(ii) consonant d occurring at the end of stems of verbs that attach suffixes beginning with t, e.g. ﻛَذَتْ ﻛَذَتْ qa‘ad-tu > qa‘at-tu I sat down.

In the above examples phonetically conditioned gemination doesn’t influence meanings of the words.

In most cases gemination is accompanied by transfixation\textsuperscript{13} and then derivational bases and derivatives have different syllabic structures.

The role of gemination in inflection

In MSA there exist two patterns of broken plurals, in which gemination occurs: ﻓُعَّلُ ﻓُعَّلُ fu‘al and its more frequent variant with long vowel following geminated consonant ﻓُعَّلُ ﻓُعَّلُ fu‘al.\textsuperscript{14} They are used in case of personal nouns designating performers of habitual actions, that follow the pattern ﻓَعَّلُ ﻓَعَّل ﻓَعَّل fa‘il.

The pattern ﻓَعَّل ﻓَعَّل fa‘il is typical of active participles derived from triconsonantal form I verbs. They can function as adjectival attributes, e.g.:

 دون ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛ�ا ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛﺔ ﺛ(135,151),(275,151) except for citizens inhabiting areas controlled by The Islamic State of Iraq and the Levant (Aš-Šarq al-Awsat, 27.01.2015).

Plural forms are then created with the use of suffix -hna (-Ina).

Participles following the pattern ﻓَعَّل ﻓَعَّل fa‘il are adjectival participles. In MSA they are very often subject to paradigmatic derivation, i.e. they are transferred into noun paradigm and occur in syntactic positions typical of nouns (this derivational pattern is today the most expansive method of creating new words in Arabic).\textsuperscript{15}


\textsuperscript{15} Król, *Słowotwórstwo rzeczowników*, pp. 135–141.
The nouns that are products of this derivational pattern may have various meanings.
In this group personal nouns of performers of habitual actions, that single out particular
social (e.g. professional) groups (nouns of profession) are the most numerous. Only in
case of those nouns plural forms are created with the use of gemination. Examples:

\[
\begin{align*}
\text{šā'im} & \rightarrow \text{šuwwāh} / \text{ṣuyyam} \text{ faster, one who fasts;} \\
\text{rā'ī} & \rightarrow \text{ruk'ā} \text{ kneeler, one who kneels;} \\
\text{sā'ī} & \rightarrow \text{suwwāh} / \text{suyyāh} \text{ traveler, tourist;} \\
\text{qārī} & \rightarrow \text{qurrā} \text{ reader.}
\end{align*}
\]

Geminatien as a mechanism of creating plural forms allows one to differentiate
between derivatives belonging to this semantic category and others, i.e.:

(i) Nouns of performers of actual actions, the plural forms of which are created with
the use of suffixation, e.g.:

\[
\text{عَدَدُ الجَالِسِينَ قَلِيلٌ.} \quad \text{The number of the sitting [people] is small.} \quad \text{(Al-Ahram: 3.02.1015).}
\]

(ii) Impersonal nouns of performers of actions, the plural forms of which are created
with the use of transfixation, without gemination, e.g. the word \text{ًāmil} may
also occur with the meaning factor, (causative) agent, something that functions
and then its plural form is: \text{ًāwāmil}; other example is: \text{ًāhif} \text{ rawāfī} / \text{rawāfīr} \\
\text{crane, machinery that is used to lift something up,} \text{ hoof, organ that is used for digging.}

(iii) Nouns of instruments, particularly feminine ones, e.g.:

\[
\begin{align*}
\text{رَفَعُ} & \rightarrow \text{rāfī} / \text{rāfī'a} & \text{rawāfī} \quad \text{crane, machinery that is used to lift something up,} \\
\text{حَافِرُ} & \rightarrow \text{ḥāfīr} & \text{ḥawāfīr} \quad \text{hoof, organ that is used for digging.}
\end{align*}
\]

The role of gemination in word formation

Gemination as a word-formation technique that accompanies transfixation in most
cases involves the second consonant, and very rarely the third consonant of the root of
the word.\footnote{In this case there appear also other patterns of plural, e.g.: \text{ًālim} \text{ 'ulamā' scientist;} \text{ًālīm} \text{ šīyām one who fasts.} \text{fa'āla worker,} \\
\text{fa'īl field worker.}}

In the following survey of various types of derivatives I also take into consideration
word-formation motivation.\footnote{Hoberman, Local and Long-Distance Spreading, p. 546.}

1. Word patterns with gemination are used i.a. for creating intensive deverbal adjectives.
They are derived exclusively from form I verbs having triconsonantal roots, with short
vowel following the first consonant and long vowel following the second, geminated
consonant, e.g.:

\[
\begin{align*}
\text{٣٤} & \quad \text{IWONA KRÓL}
\end{align*}
\]
(i) ﻓُعْل fa‘ūl, ﻓُعْل fu‘ūl:
 Cadillac qaddus / quddus most holy, one who is most holy.

(ii) ﻓِئْل fi‘il:
 سَكِر sakira to be, to get drunk → سَكِر sikkir drunkard, heavy drinker, one who is
 frequently or habitually drunk;
 سَدَاقَة sadaqa tell the truth, be sincere, be right → سَدِيد siddiq strictly veracious,
 honest, one who is veracious, honest;

(iii) ﻓِئْل fi‘il:
 أَكْل ‘akala → أَكْلْ akkāl voracious, gluttonous, hearty eater, glutton, one who often
eats;
 كَذَبُ kaddab to lie, deceive → كَذَبُ kaddub lying, untruthful, liar, swindler, one
 who often lies;
 دَخَلُ dahika to laugh, jeer → دَخَلُ dahhāk frequently or constantly laughing,
 laugher, joker, one who often laughs.19

The adjectives belonging to the category (iii) may be subject to paradigmatic derivation
(analogously to the derivatives motivated by active participles) and then they function
as nouns.20 They sometimes have the same meanings as adjectives having word pattern
without gemination, but with long vowel ū following the second consonant of the root
instead: ﻓُعْل fa‘ūl, ﻓِئْل fi‘il:
أَكْلْ akkūł voracious, gluttonous, hearty eater, glutton, one who often
eats;
 كَذَب كَذَبُ kaddub lying, untruthful, liar, swindler, one
 who often lies;
 دَخَلُ dahika to laugh, jeer → دَخَلُ dahhāk frequently or constantly laughing,
 laugher, joker, one who often laughs.19

2. In MSA lexemes with the word pattern ﻓِئْل fi‘il, when they are motivated by
verbs designating habitual actions being bases for particular professions, have exclusively
substantive-like meanings and designate performers of those actions. Today they are
considered being derived directly from verbs, e.g.:
 نَقَضُ naqash to paint, sculpture → نَقَضُ naqqāš painter, sculptor;
 نَقَضُ naqada to criticize → نَقَضُ naqqād critic;
 جُزَأُ gazzara to slaughter, kill, butcher → جُزَأُ gazzār butcher.21

The same word pattern characterizes also derivatives motivated by nouns, that
designate:
(i) object of habitual action performed by someone, e.g.:
 حَسَبُ ḥaṣāb wood, lumber, timber → حَسَبُ ḥaṣṣāb lumber merchant, one who
 works with timber;
 زَبَل زَبَلَة zabbāl refuse, rubbish, garbage → زَبَل زَبَلَة zabbāl sweeper, garbage collector,
one who collects garbage;

19 Fleisch, Traité de philologie arabe, Vol. 1, p. 358; Janusz Danecki, Gramatyka języka arabskiego, Vol. 1,
21 Król, Słowotwórstwo rzeczowników, pp. 82–85.
(ii) result of habitual action performed by someone, e.g.:

- sābūn soap → šabbān soap boiler, soap maker;
- hidā’ shoe → ḥaddā’ shoemaker;

(iii) place at which some habitual action is performed by someone, e.g.:

- bahr sea → bāḥār seaman, sailor.22

Contrary to intensive adjectives, which are very rare today, nouns of performers of habitual actions are quite numerous, however it is paradigmatic derivation based on active participles derived from most verbs forms and adnominal adjectives, that is the most productive mechanism of creating such nouns.

3. Word pattern فعَّال fa‘āl when transferred into feminine paradigm (فَعَّالَةُ fa‘āla)23 is typical of nouns of instruments (tools, mechanisms, devices, appliances).24

Those nouns are motivated by form I verbs and this type of derivation is quite productive today, e.g.:

- kasara to break, shatter, fracture → kassāra crusher;
- ḥassāda to harvest, to reap → ḥassāda mowing machine, harvester.

Much more rarely they are motivated by nouns, e.g.:

- talāg snow, ice → ṭallağa refrigerator, icebox.

In few cases nouns of instruments are created with the use of the word pattern فعَّال fa‘al (masculine), e.g.:

- ḥalāta to mix, to blend → ḥallāt mixer, mixing machine.25

The above nouns refer to tools and devices, that are used for performing habitual actions – analogously to nouns of performers of actions having the word pattern فعَّال fa‘āl.

4. Form II verbs

Form II verbs are derived from form I verbs with the use of gemination of the second root consonant. In most cases they are transitive verbs.26 Their frequency is very high and they may have various meanings,27 that depend on properties or causalities constituting their lexical aspect.28

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23 Suffix -a is a feature of impersonal noun here, see: Jerzy Łacina, Współczesna specjalistyczna terminologia arabska i procesy słowotwórcze na przykładzie słownictwa z dziedziny chemii, fizyki i techniki, Wydawnictwo Naukowe UAM, Poznań 1989, p. 8.
24 Król, Słowośtwórstwo rzeczowników, pp. 102–104.
25 Because they may be confused with personal nouns of performers of actions.
26 Ryding, Reference Grammar, p. 491.
THE ROLE OF GEMINATION IN INFLECTION AND WORD FORMATION OF MODERN STANDARD ARABIC

(i) causative (factitive) meaning – bringing about some activity or state, e.g.:
- ﺳﻤﻎ sami’ to hear, to listen → ﺱﻤﺎً qa互联互通 to make hear;
- ﺑﻠﻎ balaga to reach, to arrive → ﺑﻠﮕﺎ qa互联互通 to make reach or attain;
- ﻣﺪر qadira to be or become dirty → ﺗﺪﺮ qa互联互通 to make dirty, to pollute.

(ii) intensive meaning – performing action with greater intensity, e.g.:
- ﻷدة kasara to break → ﻷدة qa互联互通 to break into pieces, fragmentize;
- ﺑﻠﻎ balata to kill, murder → ﺑﻠﻐﺎ qa互联互通 to kill, massacre, slaughter;
- ﻣﺪر qaddara to reach, to arrive → ﻣﺪر qa互联互通 to make reach or attain;
- ﺡﺰ qafa’a to cut, cut off → ﺡﺰ qa互联互通 to cut into pieces.

(iii) iterative (frequentative) meaning – performing action repeatedly, e.g.:
- ﺪﻴﻪ tawwafa to run around often, to circle, to circumambulate;

(iv) declarative (estimative) meaning – declaring and assessing, e.g.:
- ﻻ ﻣﺪر qaddara to make
- ﻷدة kasara to break
- ﺑﻠﻎ balata to kill, murder
- ﻣﺪر qaddara to make
- ﺡﺰ qafa’a to cut, cut off

Some verbs belonging to this class are motivated by nouns. They give the meaning of creating something with the use of something else, dealing with something, etc., e.g.:
- ﺮ ﻷدة kasara to break, dealing with ice, to make ice
- ﺖ ﻣﺪر qaddara to make
- ﺴ ﻗﺪ qa互联互通 to make
- ﺪ ﺴ ﻳ ر qafa’a to cut, dealing with pieces

5. Form V verbs

Form V verbs are derived from form II verbs with the additional prefix ta- bearing reflexive meaning.29 Here gemination is inherited from derivational base. The verbs transform meanings of their form II bases (resulting from gemination) making them reflexive or mediopassive meanings, e.g.:
- ﺳﻤﻎ sami’ to hear, to listen → ﺱﻤﺎً qa互联互通 to make hear;
- ﺑﻠﻎ balaga to reach, to arrive → ﺑﻠﮕﺎ qa互联互通 to make reach or attain;
- ﻣﺪر qadira to be or become dirty → ﺗﺪﺮ qa互联互通 to make dirty, to pollute.

6. Form IX verbs

These are intransitive verbs meaning to be or to become (of some quality). This category of verbs is the least numerous one.31 They are derived exclusively from adjectives

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29 Wright, Grammar of the Arabic Language, p. 36.
designating colours or physical defects with the use of gemination of the third root consonant, e.g.:

- اَحْضَرْ اَحْضِرْ to be or become green;  
- اَزْرَقْ اَزْرَقْ to become blue;  
- اَحْوَلْ اَحْوَلْ to become squint-eyed, cross-eyed.

Some authors suggest that form IX verbs are motivated by form I verbs. Taking into account, however, that in case of some colours or physical defects there are no form I verbs designating states, the supposition that it is adjectives that motivate them, is more plausible. Those adjectives are also derivational bases for form II verbs (denominal forms are pretty frequent in this category) meaning: to make something have some quality, e.g.:

- اَصِرْ اَصِرْ to make yellow, to dye yellow;  
- اَحْمَرْ اَحْمَرْ to color or dye red, to redden.

Conclusions

Arabic morphology is based on a system of consonantal roots, combined with transfixing, prefixing, suffixing, infixing and gemination. In the system of Modern Standard Arabic gemination may be conditioned phonetically or – more often – morphologically. In this latter case gemination becomes one of the mechanisms (together with transfixation) of creating particular inflectional forms or derivatives. As far as inflexion is concerned, gemination occurs in plural forms (broken plural). In word formation it is used for deriving verbs from verbs, nouns or adjectives, as well as for deriving nouns from verbs, nouns or adjectives and also for deriving adjectives from verbs. The occurrences of gemination linked to word formation are therefore the most frequent.

Derivatives created with the use of gemination have various semantic functions, but among them there is one – function of expressing increased quantity (resp. intensity, plurality, etc.) – that seems to be the most frequent. It occurs in case of every category of words: nouns, adjectives and verbs. As far as inflection of nouns is concerned, gemination is used for creating plural forms (of nouns of performers of habitual actions), therefore it expresses semantic category of discrete quantity that may be subject to numerical quantification (e.g. in phrases consisting of a noun and numeral: مَليْوَنْ سُكَّانِ milyūn sukkan million inhabitants).

The broadly understood aspect of quantity characterizes some of form II verbs, which denote intensive, long lasting or repetitive activities, as well as nouns and adjectives (motivated by verbs) connoting abundance of events or states of some sort. These are nouns of performers of habitual actions and nouns of instruments that connotes multiple and repetitive actions performed by the bearer of the noun, as well as adjectives motivated by verbs expressing increase of intensity of a state or multiplicity and repetitiveness of an action.

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33 Wright, Grammar of the Arabic Language, p. 43.